## Claims

1. A method for modifying with laser output a measurable operational parameter of an activated electronic device while preventing a spurious optoelectric response in the device, the device including target material and nontarget material positioned within optical proximity to the target material, the laser output including a laser pulse having a spatial distribution of energy that impinges the target material and exposes the nontarget material to extraneous laser output, the target material having ablation sensitivity to laser output in a first wavelength range and the nontarget material having optoelectric sensitivity to wavelengths in a second wavelength range that forms a subset of the first wavelength range such that exposure to a wavelength within the second wavelength range causes spurious optoelectric effects in the nontarget material that transiently obscure for a time interval concurrent with and following the laser pulse a true value of the measurable operational parameter of the device, comprising:

determining a third wavelength range of laser output for which the nontarget material has substantial optoelectric insensitivity, the third wavelength range excluding the second wavelength range;

activating the device;

generating a laser pulse at a selected wavelength that falls within an overlapping region of the first and third wavelength ranges;

impinging the target material with the laser pulse having sufficient power to ablate a portion of the target material; and

measuring within the time interval a true value of the operational parameter of the device.

2. The method of claim 1 further comprising:

comparing the true value of the measurable operational parameter with a preselected value for the operational parameter of the device; and

determining whether the target material requires additional impinging with laser output to satisfy the preselected value for the operational parameter of the device.

3. The method of claim 1 in which the target material forms part of a target structure and the nontarget material comprises a substrate of the target structure, wherein the nontarget material comprises silicon, germanium, indium gallium arsenide, or semiconductor or ceramic material and the target material comprises aluminum, titanium, nickel, copper, tungsten, platinum, gold, nickel chromide, tantalum nitride, titanium nitride, cesium silicide, doped polysilicon, disilicide, or polycide.

4. The method of claim 1 in which the nontarget material comprises a portion of an adjacent electronic structure.

5. The method of claim 4 in which the adjacent electronic structure comprises a semiconductor material-based substrate or a ceramic substrate.

6. The method of claim 1 in which the target material forms part of a resistor, capacitor, or inductor.

7. The method of claim 1 in which the target material or nontarget material comprises a portion of a photo-electric sensing component.

8. The method of claim 7 in which the photo-electric sensing component comprises a photodiode or a CCD.

9. The method of claim 1 in which the step of determining is substantially instantaneously subsequent to the step of impinging.

10. The method of claim 1 further comprising substantially no device ~~setting~~ settling time between the steps of impinging and measuring.

11. The method of claim 1 in which the nontarget material comprises silicon and the third wavelength range comprises wavelengths between 1.2 and 3 μm.

12. A laser functional trimming system for modifying with laser output a measurable operational parameter of an activated electronic device while preventing a spurious optoelectric response in the device, the device including a target material and a nontarget material positioned within optical proximity to the target material, the laser output including a laser pulse having a spatial distribution of energy that impinges the target material and exposes the nontarget material to extraneous laser output, the target material having ablation sensitivity to laser output in a first wavelength range and the nontarget material having optoelectric sensitivity to wavelengths in a second wavelength range that forms a subset of the first wavelength range such that exposure to a wavelength within the second wavelength range causes spurious optoelectric effects in the nontarget material that transiently obscure for a time interval concurrent with and following the laser pulse a true value of the measurable operational parameter of the device, comprising:

an electrical input for activating the device;

a laser that generates laser output at a selected wavelength in a third wavelength range for which the nontarget material has substantial optoelectric

insensitivity, the third wavelength range overlapping the first wavelength range and excluding the second wavelength range;

a beam positioner to direct at the target structure a laser pulse at the selected wavelength and at a power sufficient to ablate a portion of the target material; and

a detector for measuring within the time interval a true value of the operational parameter of the device.

13. The laser system of claim 12 further comprising:

a computer controlled system for comparing the true value of the measurable operational parameter with a preselected value for the operational parameter of the device and for determining whether the target material requires additional impinging with laser output to satisfy the preselected value for the operational parameter of the device.

14. The system of claim 12 in which the target material forms part of a target structure and the nontarget material comprises a substrate of the target structure, wherein the nontarget material comprises silicon, germanium, or indium gallium arsenide, or semiconductor or ceramic material and the target material comprises aluminum, titanium, nickel, copper, tungsten, platinum, gold, nickel chromide, tantalum nitride, titanium nitride, cesium silicide, doped polysilicon, disilicide, or polycide.

15. The system of claim 12 in which the target material forms part of a resistor, capacitor, or inductor.

16. The system of claim 12 in which the nontarget material comprises a portion of an adjacent electronic structure.

17. The system of claim 16 in which the adjacent electronic structure comprises a semiconductor material-based substrate or a ceramic substrate.

18. The system of claim 12 in which the target material or nontarget material comprises a portion of a photo-electric sensing component.

19. The system of claim 12 in which the detector obtains a true value of the operational parameter of the device immediately after pulse impingement of the target material without a delay imposed by device settling time.

20. The system of claim 12 in which the detector obtains a true value of the operational parameter of the device substantially instantaneously subsequent to laser pulse impingement of the target material.

21. The system of claim 12 in which the nontarget material comprises silicon and the third wavelength range comprises wavelengths between 1.2 and 3 $\mu$m.

22. The system of claim 12 in which the nontarget material comprises germanium and the third wavelength range comprises wavelengths between 1.7 and 3 $\mu$m.